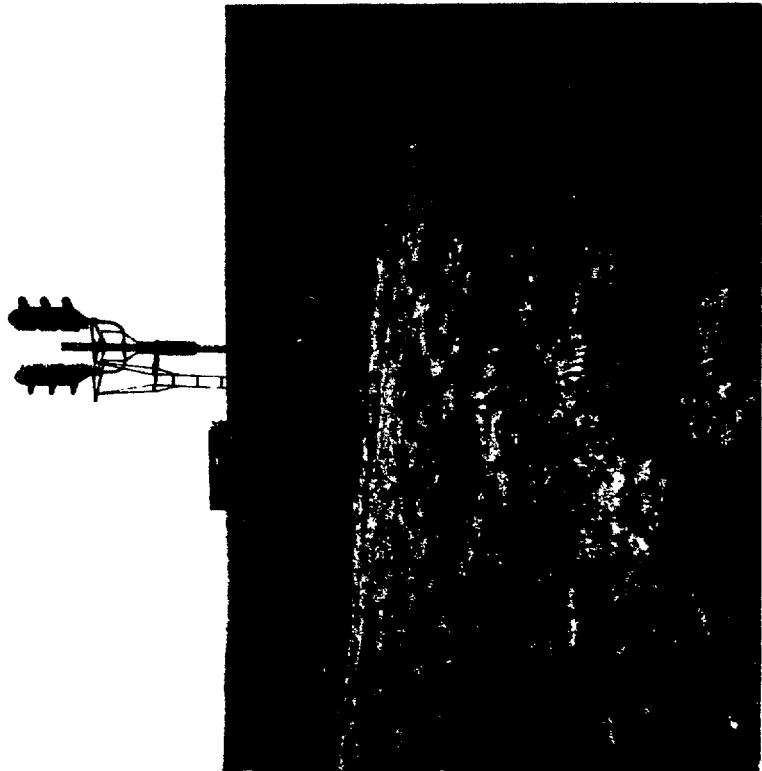


## The Practicality of IVSAWS Deployment by Railroad Companies



Photograph 1. TTC terrain is flat with few structures. VPAS communication systems (RF, audio, IR optical) should work well in this environment. Signal shown is used to control train movement.



Photograph 2. United States Department of Transportation has locomotives at the AAR TTC.

## The Practicality of IVSAWS Deployment by Railroad Companies

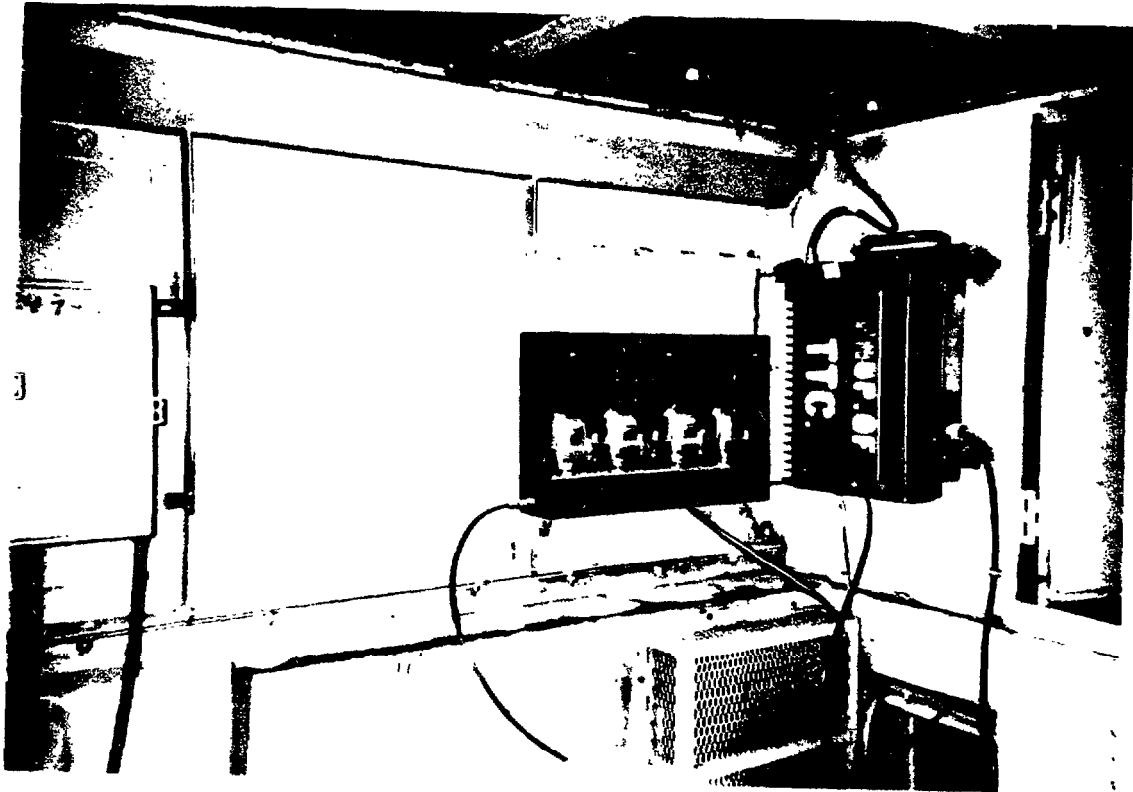


Photograph 3. Locomotives have plentiful space for antenna mounts.

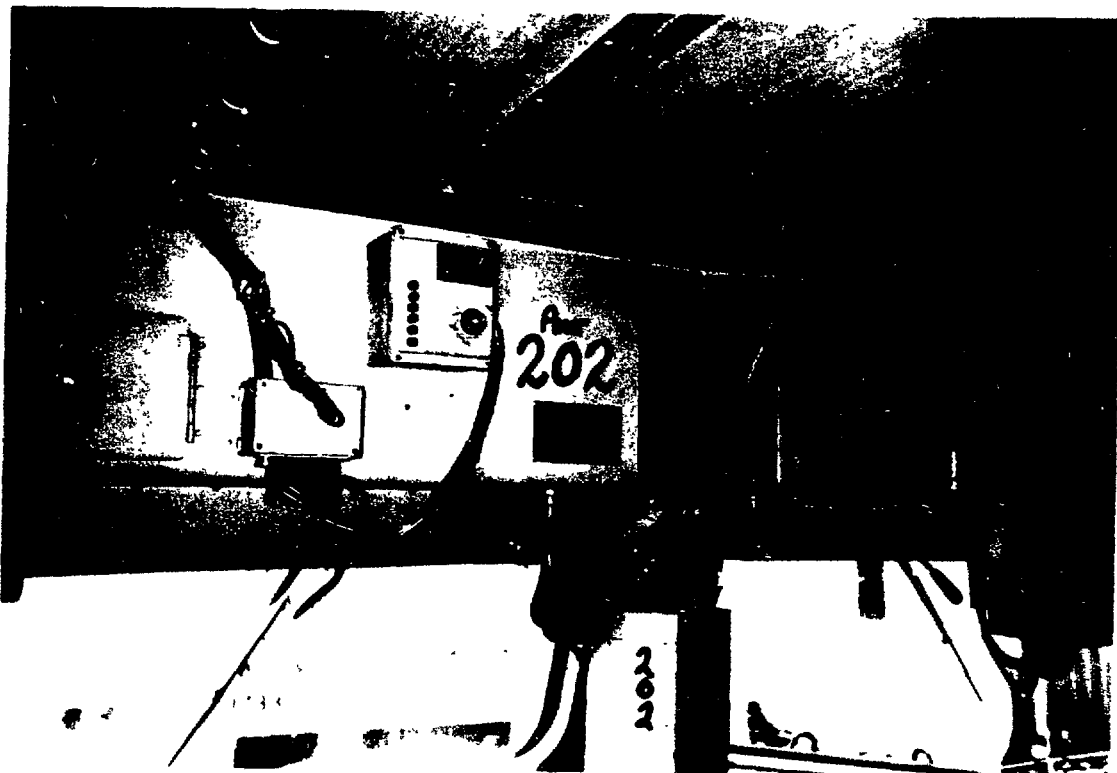


Photograph 3. In-cab electronics are simple, few, and rugged. Nose of cab is visible from windows.

## The Practicality of IVSAWS Deployment by Railroad Companies

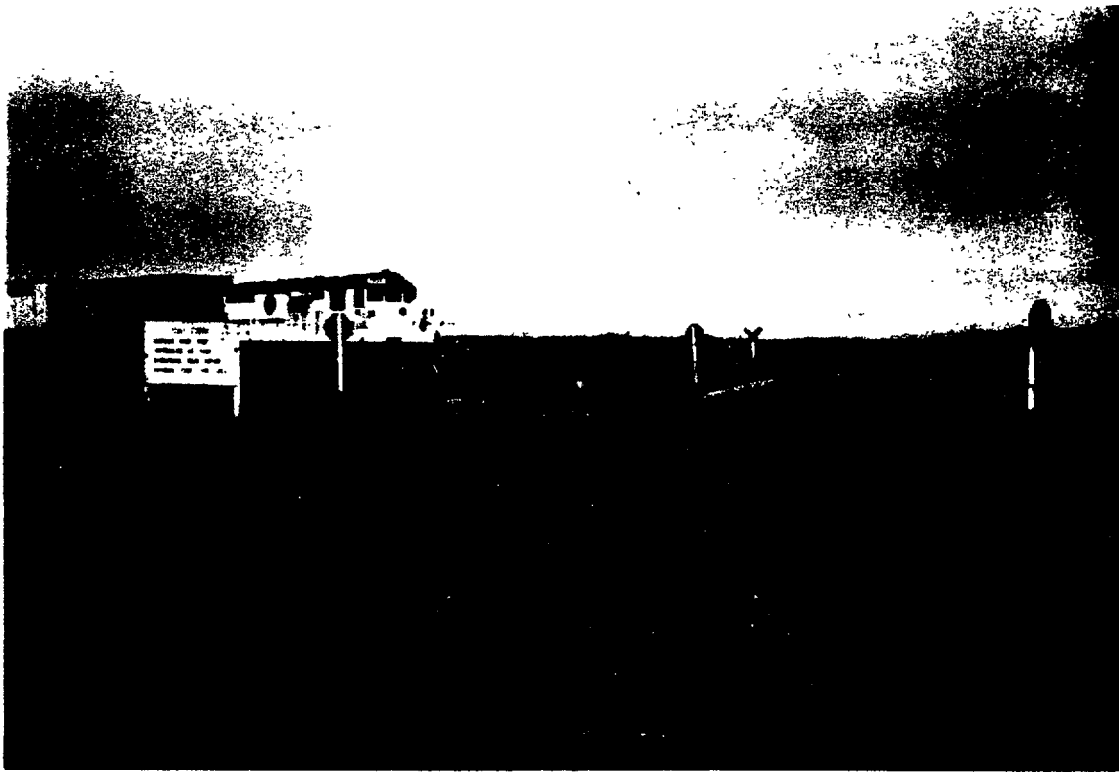


Photograph 5. The nose of most cabs are large and are capable of housing racks of test equipment.

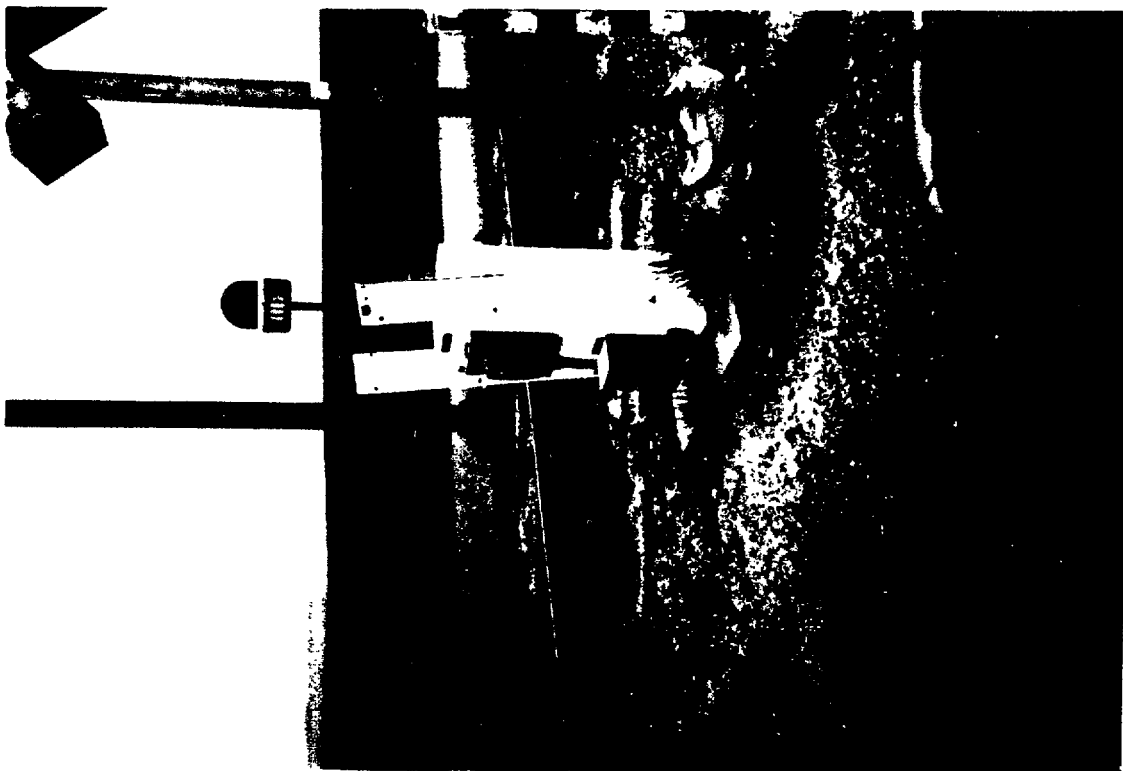


Photograph 6. Radios are currently mounted high in the front of the cab. Space is available for other instrumentation.

## The Practicality of IVSAWS Deployment by Railroad Companies

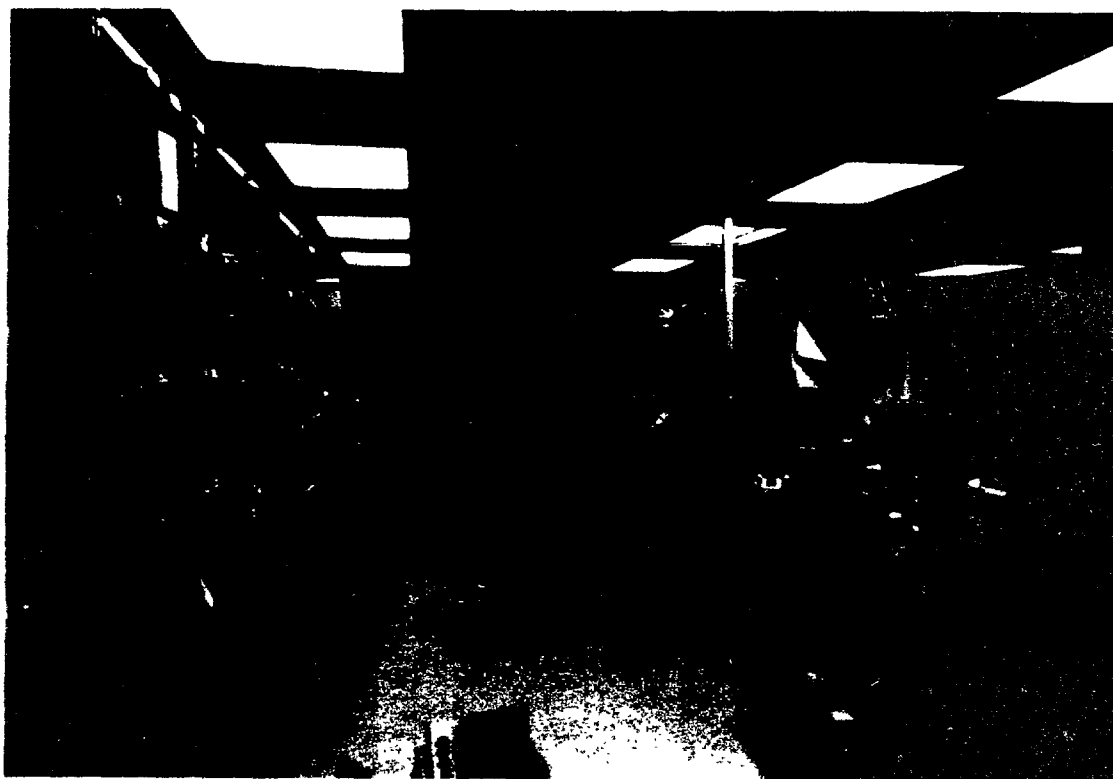


Photograph 7. The TTC has uninstrumented grade crossings.

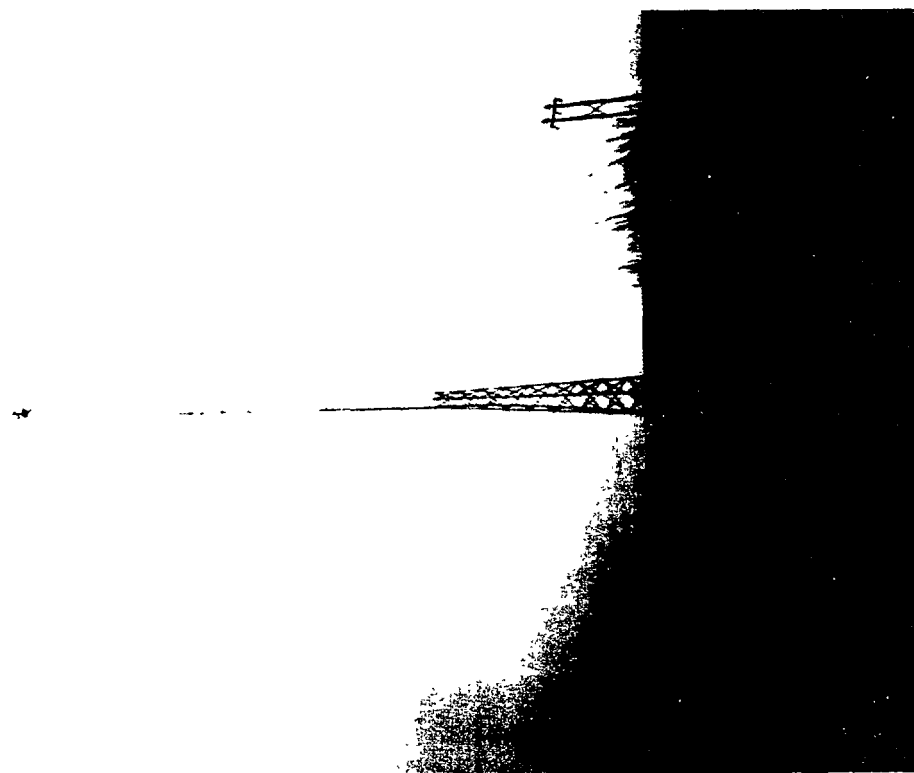


Photograph 8. Crossings with various levels of instrumentation are available at the TTC.

## The Practicality of IVSAWS Deployment by Railroad Companies

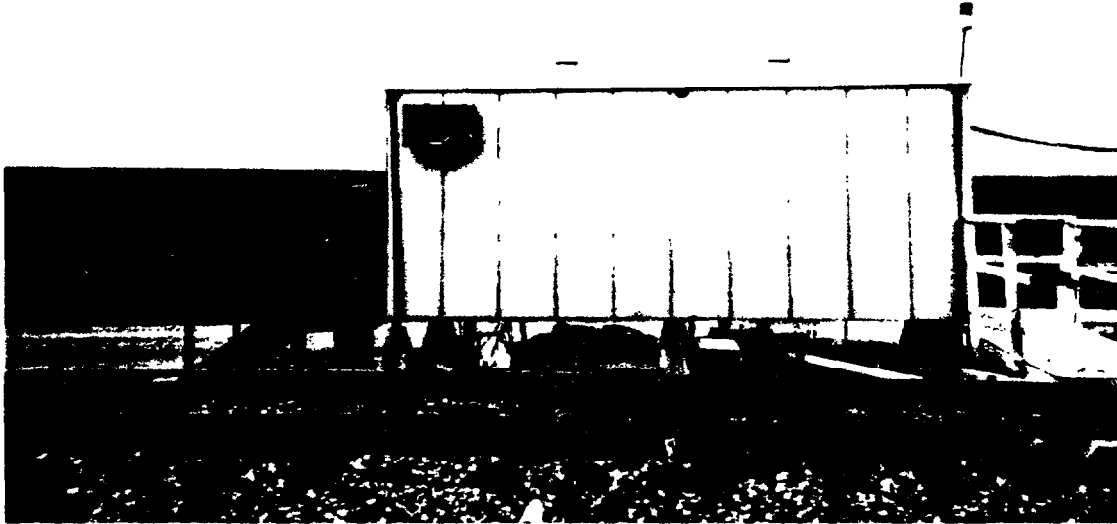


Photograph 9. Lab, office, and storage space is available for the VPAS demonstrations

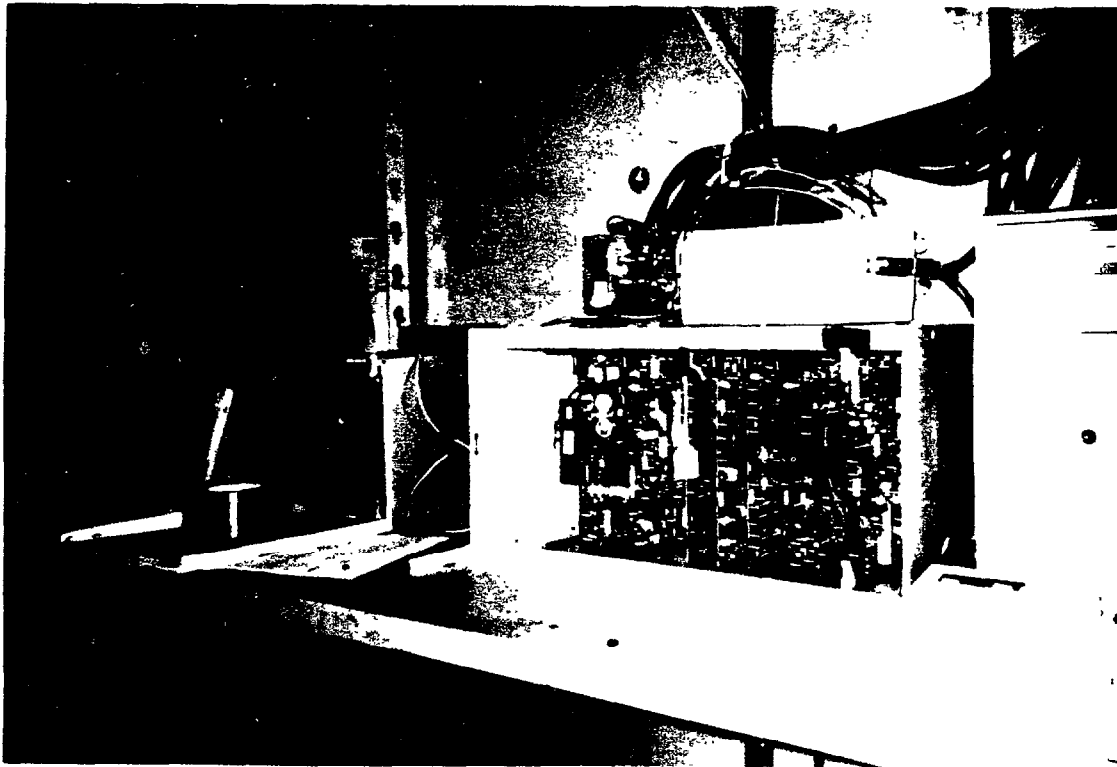


Photograph 10. Masts are available to support IVSAWS base station transmitters.

## The Practicality of IVSAWS Deployment by Railroad Companies



Photograph 11. Instrumentation electronics are portable between grade crossings.



Photograph 12. Instrumentation electronics have outputs available for use by VPAS prototypes.